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Guidelines on Liquidity Cost Benefit Allocation

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1. Introduction

The topic of an effective allocation mechanism for liquidity costs, benefits and risks has come to the fore recently. Recent regulatory initiatives have contributed to this heightened profile.

Recommendation 2 in CEBS's technical advice to the EU commission on liquidity risk management (CEBS 2008 147) states: "Institutions should have in place an adequate internal mechanism – supported where appropriate by a transfer pricing mechanism – which provides appropriate incentives regarding the contribution to liquidity risk of the different business activities. This mechanism should incorporate all costs of liquidity (from short to long-term, including contingent risk)".

Point 14 in Annex V of the amendments to the CRD (Directive 2009/111/EC of the European parliament and of the Council of 16 September 2009) states:

"Robust strategies, policies, processes and systems shall exist for the identification, measurement, management and monitoring of liquidity risk over an appropriate set of time horizons, including intra-day, so as to ensure that credit institutions maintain adequate levels of liquidity buffers. Those strategies, policies, processes and systems shall be tailored to business lines, currencies and entities and shall include adequate allocation mechanisms of liquidity cost, benefits and risks."

In the light of these recommendations, CEBS decided to issue guidelines on liquidity cost benefit allocation.

Recalling the CEBS Guidelines on the application of the Supervisory Review Process (January 2006), especially those guidelines on internal governance, the presence of an effective mechanism should become part of the dialogue between supervisors and institutions when assessing the liquidity risk management framework. The assessment of liquidity allocation mechanisms is important within an overall approach to liquidity risk.

CEBS expects its members to implement the guidelines into their national frameworks with due concern to the proportionality principle and to apply them by 30 June 2011 at the latest with an expectation for implementation by the institutions before 1 January 2012. National supervisors should monitor the implementation progress, as necessary.

To ensure harmonisation of practices across Member States, CEBS is considering conducting an implementation study within one year after the recommended implementation date.

2. Main objective

The objective of these guidelines is to provide high level guidance to institutions on the elements to be considered when creating or reviewing adequate liquidity cost benefit allocation mechanisms. These guidelines target a liquidity cost concept that includes not only direct funding costs, but also associated indirect costs such as liquidity contingency support. An effective allocation mechanism should facilitate and reinforce the risk culture around liquidity management. The guidelines should help institutions to link their strategic direction with liquidity resource allocation. Using internal pricing mechanisms allow institutions to improve their process for pricing products, measuring performance, assessing new products and enhancing the tools for asset/liability management. This should be applicable to all significant business activities, both on- and off-balance sheet. It also serves to align the risk-taking incentives of individual business lines with the liquidity risk exposures their activities create for the institution as a whole.

Examples of mechanisms observed in certain institutions are set out in Annex 1.

3. Contents

The guidelines are principles-based and aimed at internal risk management in institutions. Respecting the proportionality principle, they are intended to apply to a wide range of institutions in terms of size, business models and funding structure. The principles of internal transparency and effectiveness were also relevant in developing the guidelines. CEBS issues broad guidance rather than detailed and prescriptive guidelines. The soundness and the completeness of the methodologies developed by the institutions will be assessed within the SREP¹ process. The key goals adopted in drafting the guidelines are the following:

-the development of an adequate and comprehensive pricing mechanism; -
the mechanism should incorporate all relevant liquidity costs, benefits and risks; and

-the resulting mechanism should allow management to give appropriate incentives to ensure prudent management of liquidity risk.

Any resulting mechanism should be consistent with the diversity and complexity of the activities of the institutions, taking the proportionality principle into consideration.

The funding transfer price concept in this paper consists of two components. First, at a minimum, the costs of raising funds from an asset and liability management perspective and the interest rate curve cost component (direct costs of funding) should both be captured. Second, to calculate the correct

¹ Supervisory review and evaluation process

fund transfer price, indirect liquidity costs are to be added. Amongst these liquidity costs, one should at least distinguish between (i) the mismatch liquidity cost, for which, the liquidity tenor (not the interest rate tenor) is relevant²; ii) the cost of contingent liquidity risk, including inter alia, the cost of holding stand-by liquidity available to cover unexpected liquidity needs (liquidity buffer) as well as the cost of roll-over risk; and iii) other categories of liquidity risk exposure that an institution may have e.g. a country risk cost that may arise for institutions where balance sheets in non-fungible currencies are being funded.

In the guidelines a distinction is drawn between direct (e.g. the market cost of raising funds) and indirect costs (e.g. the cost of additional liquidity).

² For example, if a 3 year fixed rate loan is granted and is funded by 3 month commercial paper that will be rolled over each quarter, the appropriate liquidity cost is the 3 year funding cost and not the initial 3 month cost of CP issued.

4. The Guidelines

Guideline 1- The liquidity cost benefit allocation mechanism is an important part of the whole liquidity management framework. As such, the mechanism should be consistent with the framework of governance, risk tolerance and the decision-making process.

1. A mechanism that allocates liquidity costs, benefits and risks is part of the effective risk management framework of an institution. Liquidity is a scarce resource and accordingly a proper measurement of costs and benefits is essential to support sustainable business models and promote efficiency in individual institutions as well as in the whole banking sector.
2. In general, the starting point for developing an allocation mechanism is an institution's fund transfer pricing system (FTP). Institutions, generally, have some sort of transfer pricing mechanism that they use at the minimum to price lending or to calculate the correct net interest income component of profitability for business units, products, and customers. FTP systems have primarily been management accounting systems used for the purposes of budgeting, profit planning and asset & liability management.
3. The prices derived from the proposed liquidity cost benefit allocation mechanism, although market based, are likely to have wider information content than traditional management accounting figures.
4. Institutions must have a clear definition of liquidity risk tolerance³. This tolerance along with the business model and chosen strategy of the institution sets the context for a functioning liquidity allocation mechanism.
5. Based on an agreed risk tolerance for liquidity, and alongside other risk management features such as gap limits, concentration limits, liquidity buffer and other quantitative measures, the allocation mechanism should provide a tool for management to effectively plan the liquidity structure of the balance sheet and the off- balance sheet items.

Guideline 2- The liquidity cost benefit allocation mechanism should have a proper governance structure supporting it.

6. The overall methodology used within the global liquidity management and risk framework should be approved by the management body in its supervisory function⁴. The resulting internal prices should be generated in a transparent and consistent manner. The management body in its

³ Please see CEBS 2008 147 Second part of CEBS's technical advice to the EU Commission on Liquidity Risk Management, chapter III and CEBS High level principles for risk management (16 February 2010).

⁴ Due to different board structures in institutions in different member countries, we use the notions management body in its supervisory function or management body in its management function.

- management function or a governing body to which the management body delegates its powers (e.g. the Asset/Liability Committee (ALCO)) should explicitly approve the overall liquidity allocation mechanism and policies at least annually.
7. Given the importance of the internal prices for price setting, the management body should expect that all relevant management levels use the information generated actively and properly and are experienced and skilled enough to fully utilise such information in the area of their responsibilities.
 8. The liquidity cost benefit allocation mechanism should be controlled and monitored by an independent unit e.g. risk control or financial control in a transparent way. These independent controls and monitoring are important because the internal prices affect the measurement of product margins as well as results for the business units.
 9. The prices generated by the agreed methodology should be used for the internal pricing of liquidity, performance measurement and the appraisal of new products or businesses for all significant business activities, both on- and off-balance sheet. If management wishes to incentivise certain behaviours, this should be subject to a separate, formal approval and reporting process. The objectivity of the internal prices should be maintained for the correct pricing and reporting of liquidity.
 10. The area or responsible function ultimately charged with implementing and running the internal prices mechanism should be service-oriented and not have a profit target for this specific and independent role. Equally, for larger institutions, personnel working within the area should not be set profit targets for this activity. Appropriate technical systems and databases should, taking the proportionality principle into consideration, be available to the independent area or function responsible for the internal pricing. Any profit or loss from the internal pricing area or responsible function should be measured and made transparent within the organisation.
 11. A comprehensive approach to the allocation of liquidity cost is recommended. To promote consistent behaviour between the head office and subsidiaries in larger institutions, there should be a consistent internal pricing framework and policies that applies across the organisation and its activities, both on- and off- balance sheet, even if subsidiaries' treasury units can act independently. A central management function e.g. treasury should have visibility over the entire organisation's balance sheet and off – balance sheet items.

Guideline 3- The output from the allocation mechanism should be actively and properly used and appropriate to the business profiles of the institution.

12. The mechanism should be designed to ensure that the end users in the institution can understand the output and know how to use it to facilitate decisions that will ultimately impact the financial situation of the institution. The internal prices should percolate down to decision makers at transaction level or if appropriate, to a pool of transactions with homogenous liquidity risk to ensure maximum impact. There should be a good dialogue between business lines and the area responsible for calculating the internal prices. The business lines should understand the rationality of the internal prices and the treasury function needs to understand the rationale and funding implications of the deals transacted.
13. The liquidity pricing methodology should compensate the providers of liquidity and charge the users.
14. The liquidity allocation mechanism should generate prices that can be used at an appropriate level of granularity, reflecting the size and sophistication of the institution. Although liquidity is often managed at an aggregate level, each funding operation should have an associated price. Internal prices should be aligned with wholesale market transaction prices where available.

Guideline 4- The scope of application of internal prices should be sufficiently comprehensive to cover all significant parts of assets, liabilities and off-balance sheet items regarding liquidity.

15. As one of the common main parts of banks' liabilities, on-demand withdrawable deposits, even if they carry a low interest rate, should be properly treated. It is widely argued that retail funds are stickier than wholesale funds. In the case of fixed term funds, a customer in the retail market could be considered less sensitive than one in the wholesale market. Similarly, in a liquidity crisis, retail funds have a lower probability of withdrawal (or slower reaction time) and therefore are more valuable for liquidity purposes. However, the risk that some retail sight deposits may be withdrawn should be priced in. It is equally important that deposit gatherers are rewarded for raising stable liabilities.
16. Appropriate internal funding prices should be charged for holding trading book assets or other marketable assets (AFS⁵ portfolio). The funding price charged should reflect both the expected holding period and the liquidity risk (change in liquidity of the asset). This can be achieved by calculating prudent liquidity charges (e.g. haircuts) for marketable assets which reflect possible abrupt adverse changes in the liquidity of the asset. These charges may be determined by stress and scenario testing (consistent with those used for the liquidity buffer calculation).

⁵ available for sale

17. Committed lines should incur a charge to reflect the cost of liquid funds that must be available to meet the funding requirement of a client if the facility is drawn. When drawn the credit advanced should be charged the price of funds with a corresponding (expected) maturity. For uncommitted lines the business units granting the facilities should be charged in a similar manner, albeit reflecting the higher discretion that the institution has over final payout.
18. Because the market environment is changing the mechanism should be adaptive and updated regularly. Regularity of data update depends on the complexity of the institution and funding structure, nevertheless, procedures should be established to acknowledge all material changes in the market environment within the shortest achievable time.
19. Respecting the proportionality principle the transfer prices should reflect current market conditions as well as the actual institution-specific circumstances, and should reflect both direct and indirect funding costs, including the cost of a liquidity buffer⁶. At a minimum, depending on the updating frequency, the transfer prices should reflect market conditions observed over a recent period and expected over the near future.
20. In times of stressed funding conditions, the ability of the institution to fund itself can become more limited; additional collateral may be required, counterparties may draw on committed facilities granted, off-balance sheet vehicles may require direct funding etc. The holding of a buffer of liquid assets is a direct response to this contingent liquidity risk. This buffer has a cost and it is important that the contingent liquidity risk cost should be allocated to the business units and products responsible for generating the risk. For an example of how to calculate contingent liquidity costs, please refer to Annex 2.

Guideline 5- The internal prices should be determined by robust methodologies, taking into account the various factors involved in liquidity risk.

21. Modelling the behaviour of assets and liabilities is a key step in calculating appropriate internal prices. This modelling framework should be accompanied by a robust governance framework to ensure that fair and transparent prices are calculated.
22. Behavioural models should be independently validated and regularly reviewed to ensure that all material factors are properly taken into account. Particular attention should be paid to behavioural maturity and off-balance sheet items. Evaluation of a behavioural model should be contemplated whenever a material change to business strategy is being implemented.

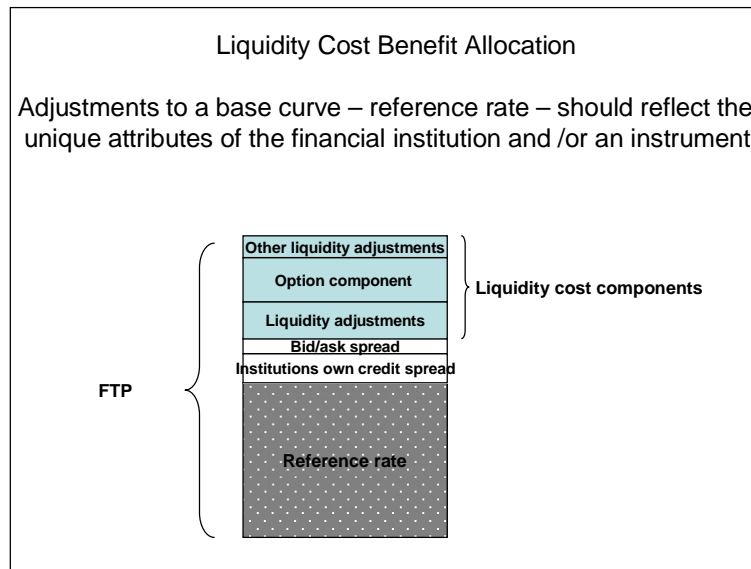
⁶ Please refer to CEBS Guidelines on Liquidity Buffers and Survival Periods (9 December 2009).

23. Selecting an internal pricing yield curve is a critical aspect since it determines how profit contributions to net interest rate margin are measured. For example, if an institution sets the benchmark cost of funds higher, it will lower the measured profitability of loans and increase the profit contribution of deposits. It is common for the benchmark to be market determined: many institutions make use of a Euribor/Libor curve for floating rate transactions and the swap curve for fixed rate transactions. Furthermore, institutions' methodologies may make use of CDS levels or bond spreads quoted in the secondary markets to establish the pricing curve. These are examples. Practices using yield curves in institutions can be more diverse. For maturities exceeding that of an institution's securities having the longest maturity, the curve may be calculated using an interest rate term structure model. When appropriate and with respect to the proportionality principle, institutions should use internal funding cost curves broken down by currencies.

Adjustments to a base curve are often necessary to reflect unique attributes of the financial institution itself and/or an instrument. Some examples are:

- a. *institutions own credit risk adjustments* reflecting the fact that the institution cannot fund itself at pure market rates. This spread depends on the creditworthiness of an institution, on the seniority status of an instrument and on general market conditions;
- b. *bid/ask spread adjustments* are usually made to reflect the benefit/cost of managing liquidity in the market ;
- c. *liquidity adjustments* are introduced for instruments that may have the same duration but due to differing liquidity attributes are not of the same value or cost to the institution. The liquidity premium may be estimated by observing rate differentials between the organisation's funding curve and the swap curve (or a risk-free rate). Swap rates quote the cost to transfer interest rate risk, so differences between actual funding rates and swaps represent the cost of raising liquidity, less term repricing risk;
- d. *option component adjustments*: prepayment assumptions are vital in calculating accurate costs of products such as mortgages and sight and saving deposits. Complicated or structured products, including those with irregular cash flows, optionality and indeterminate maturities can be transfer priced using pre-defined functions, replicating portfolios and user-defined functions. Many institutions typically apply option pricing adjustments at the product or portfolio level instead of single instruments to strike a balance between absolute precision and processing requirements; and
- e. other adjustments can also be made although they are not common in practice e.g. country risk premia and specific retail network fees for raising certain deposits.

Ideally a framework that jointly accounts for the different risk dimensions and the interactions between them should be utilised.



24. Product approval and internal pricing processes should be integrated. Selling only fairly priced products can be considered to be a major criterion for the long-term functioning of an institution. This means that when the institution is making a risk- and profitability analysis of a potential new product, the implication for the institutions liquidity risk position as well as the potential liquidity cost or benefit of the product should be taken into account.
25. The internal prices used should reflect the marginal cost of funding⁷. The prices should reflect the marginal cost over a homogenous product group. As the required size of the liquidity buffer (and its cost) changes with any new product sold, as well as any new funding tapped, an institution should ideally be able to recalculate the contingent liquidity cost element of the transfer price.

⁷ Cost of making new funding transactions in the market.

Annex 1

Liquidity Cost Allocation- Examples of observed status in European banks

In preparing this paper, several institutions were asked to present their approaches to liquidity cost/benefit allocation. The institutions ranged from international investment institutions to domestically based retail institutions.

All of the institutions surveyed had internal pricing methodologies. However, the approaches differed considerably in scope and detail.

For the majority of the institutions surveyed, the internal pricing policy framework was approved by a Board committee roughly equivalent to the Asset and Liability Committee. In another case, the Board itself approved the policy, and in one case, the CFO approved the policy.

The Treasury division, which is generally separated from the trading function, is usually responsible for implementing the transfer pricing system. In all cases except one, the Treasury is considered to be a cost centre within the institution. Generally, with one exception, divisions within the institution must use the centralised treasury and are not free to go to the funding market themselves and raise funds. The level of granularity in pricing differed considerably from transaction level to business line. The freedom to amend internal prices to incentivise certain behaviours is present in some systems. However, two of the five institutions interviewed were strict in that no amendments to internal prices at all were permitted. All systems surveyed covered asset pricing, with the majority also generating internal prices for deposits and some covering all assets and liabilities. Most, but not all, reward deposit gatherers via prices in the system.

The frequency with which prices were changed varied from daily to weekly and monthly.

There was no single agreed methodology for calculating internal prices. All systems included some direct funding cost. The approach ranged from taking a risk-free curve and adding relevant credit default swap spreads, to an approach that deconstructs the funding cost into a risk-free rate, - a liquidity premium specific to the maturity and a liquidity premium specific to the institution. For example, in this latter case, for the money market curve, the spread between OIS swaps and EONIA is used to calculate the term liquidity premium and the institution specific liquidity premium is effectively the actual cost the institution is incurring less the combination of the risk free rates and term specific liquidity premium plus the liquidity buffer cost. The majority also tried to incorporate some indirect costs. For example, one institution required each division to generate its own stress test to determine their funding requirements in contingency mode including the possible use of undrawn commitments. The overall size of the buffer is an aggregation of these individual tests. The buffer cost is the cost of required term funding to acquire the buffer plus the gap in yield return between government securities

and an index (Libor and/or Euribor). This cost is attributed to divisions based on the size of their own individual buffer.

Another institution assessed each asset category held and applied a haircut depending on the asset category's ability to be self-financed through secured funding or through repos under stressed conditions. This means that if an asset is deemed 100% illiquid, then 100% of that asset would need to be funded on a long-term basis. Contingent liabilities are also recognised as a liquidity risk. The expected cash outflows from these commitments under the stress scenario are pre-funded with long-term debt.

As all the institutions published their prices internally, each of the business units concerned with the purchase or sale of liquidity are informed. The success of the different units on the asset and liability sides is highly influenced by the internal liquidity pricing.

Internal Governance	
Level of approval of the internal pricing policy framework	<ul style="list-style-type: none"> - Board : 2 - CFO : 1 - ALCO : 2
Responsibility for implementation	<ul style="list-style-type: none"> - Treasury division : 4 - Group ALM: 1
Entity in charge of the implementation	<ul style="list-style-type: none"> - Cost center : 4 - Profit center: 1
Possibility to amend internal prices with incentives to business lines	<ul style="list-style-type: none"> - Yes : 3 - No : 2
Scope of application	
Assets	5 institutions
Deposits	3 institutions
All assets and liabilities	2 institutions
Inclusion of funding requirements in contingency mode	3 institutions

Frequency of updating	
Daily	1
Weekly	3
Monthly	1
Pricing mechanism	
Components included in the internal pricing	<ul style="list-style-type: none"> - Risk-free curve + CDS spread - Risk-free rate + maturity liquidity premium + institution liquidity premium + buffer premium - Direct funding cost + term premium + buffer premium - Short term financing cost + term funding cost (including contingent liabilities)

Annex 2

Calculating Contingency Liquidity Costs

A possible approach to determining *contingency liquidity costs* is to start with the liquidity buffer which is a tool for managing this risk.⁽⁸⁾ The liquidity buffer is held to cover a sudden increase in liquidity needs within a short time horizon (for example, up to one month) that may arise for example from a failure to roll over funding, and as such, its cost can be taken as the cost of *contingent liquidity risk* in this time frame. The cost of keeping a sufficient liquidity buffer can be calculated as a sum of the funding cost of the liquidity buffer (the cost of funding necessary for building up the appropriate liquidity buffer) and the opportunity cost of holding lower yielding highly liquid assets. The lower return is the opportunity cost that an institution must pay for its “insurance” against liquidity risk. This metric is fairly precise because it is dynamic (it changes with market conditions and the institution’s risk exposure) and forward looking (it allocates cost to future liquidity needs). The cost can be attributed to the funding with the corresponding maturity (up to the one month horizon in this example).

⁸ A Liquidity buffer generally consists of highly liquid assets.